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10/624,068

07/21/2003

Willem L. Repko

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LAUBSCHER & LAUBSCHER, P.C.  
1160 SPA ROAD  
SUITE 2B  
ANNAPOLIS, MD 21403

EXAMINER

CHO, HONG SOL

ART UNIT

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2616

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/624,068 | <b>Applicant(s)</b><br>REPKO ET AL. |  |
|                              | <b>Examiner</b><br>Hong Cho          | <b>Art Unit</b><br>2616             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-24 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. Drawing 6 is objected to because drawings are not provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112, Second paragraph***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 19-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 19, "said offset" lacks antecedent basis.

Claims 20-23 are similarly rejected because they depend on claim 19.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 9, 14 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Martinez (US 4513415).

Re claims 1, 2 and 14, Martinez discloses synchronizing local clocks of remote devices to reference clock of a broadcast station in data communication system by tuning to phase modulated signal (*recovering timing information in a packet network, where a modulated signal is used to transport additional information required for clock recovery*

*between the sender and receiver across the network or to improve the accuracy of the recovered clock* (in claim 14), column 3, lines 62-66).

Re claims 9 and 24, Martinez discloses a phase locked loop at the receiver to detects the digital information (*remove timing errors arising between the last node in the path of a packet across the network and the receiver or in the last link of the network before the receiver* (in claim 24), column 5, lines 22-28).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Hill (US 20040223559).

Re claim 3, Martinez discloses all of the limitations of the base claim, but fails to disclose the modulated signal is manifested as an offset in the rate of transmission of packets from the sender. Hill discloses generating high-speed clock signal at different frequencies (paragraph [0014], lines 7-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez to implement the feature of varying the frequency of the high speed modulate

signal to get the desired amount of jitter for the benefit of determining the level of receiver jitter tolerance margin.

Re claims 10-12, Martinez discloses all of the limitations of the base claim, but fails to disclose the modulated signal being the summation of two sinusoidal waveforms. Hill discloses summing two modulation command sinusoidal waveforms (paragraph [0026], lines 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez to implement the feature of summing two modulation command sinusoidal waveforms to determine the level of receiver jitter tolerance margin.

Claims 4-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Hill and further in view of Frazier (US 4103234).

Re claim 4, Martinez and Hill disclose all of the limitations of the base claim, but fail to disclose offset being an odd fraction of a cycle of a clock signal where the timing error at the receiver contains only high frequency components. Frazier discloses using reference tone at  $f_0/16$  compensating timing errors at high frequency (column 19, lines 35-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez and Hill to implement the feature of generating timing errors at high frequency so that high frequency components would be filtered out by conventional PLL filter.

Re claims 5 and 6, Martinez, Hill and Frazier disclose all of the limitations of the base claim, but fail to disclose an odd fraction being either  $5/32$  or  $27/32$ . It would have

been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez, Hill and Frazier so that a given odd fraction number would be used to produce desired high frequency components that would be filtered out at user defined cutoff frequency.

Re claim 8, Martinez discloses a phase locked loop at the receiver to filter out high frequency component (column 5, lines 22-28).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Wachter et al (US 5889490), hereinafter referred to as Wachter.

Re claim 13, Martinez discloses all of the limitations of the base claim, but fails to disclose modulated signal using pseudo-random modulation. Wachter discloses using pseudo-random modulation for a high resolution ranging (column 13, lines 46-48). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez to implement pseudo-random modulation for modulating signal for the benefit of providing security in the transmission and reception of encoded information.

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Shibata (US 5822317).

Re claim 15, Martinez discloses sending a modulated signal, but fails to disclose a control unit for varying the precise time of departure of outgoing packets to provide the modulated signal. Shibata discloses a timestamp affixing unit coupled to a timer (figure

2, element 105). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez to implement the timestamp unit for effectuating synchronization between the sender and receiver side.

Re claim 16, Martinez discloses receiving a modulated signal, but fails to disclose a synchronous detector for determining the precise time of arrival of an incoming packet. Shibata discloses a timestamp detecting/comparing unit coupled to a timer (figure 2, element 110). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez to implement the timestamp unit for effectuating synchronization between the sender and receiver side.

Re claim 17, Martinez inherently discloses a local clock located at the sender and receiver, respectively.

Re claim 18, Martinez inherently discloses a modulator connected to a network interface unit.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Shibata and further in view of Hill.

Re claim 19, Martinez and Shibata disclose all of the limitations of the base claim, but fail to disclose the modulated signal is manifested as an offset in the rate of transmission of packets from the sender. Hill discloses generating high-speed clock signal at different frequencies (paragraph [0014], lines 7-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez and Shibata to implement the feature of varying the



frequency of the high speed modulate signal to get the desired amount of jitter for the benefit of determining the level of receiver jitter tolerance margin.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez in view of Shibata and further in view of Hill and further in view of Frazier.

Re claim 20, Martinez, Shibata and Hill disclose all of the limitations of the base claim, but fail to disclose offset being an odd fraction of a cycle of a clock signal where the timing error at the receiver contains only high frequency components. Frazier discloses using reference tone at  $f_0/16$  compensating timing errors at high frequency (column 19, lines 35-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Martinez, Shibata and Hill to implement the feature of generating timing errors at high frequency so that high frequency components would be filtered out by conventional PLL filter.

***Allowable Subject Matter***

8. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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10. Claims 7 and 21 are allowable over the prior art of record since the cited references taken individually or in combination fail to particularly teach or fairly suggest the packet rate is offset by an amount equal to the ratio of the packet cycle and clock cycle multiplied by f.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087.

The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Seema S. Rao*  
SEEMA S. RAO 4/30/07  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

*hc*  
Hong Cho  
Patent Examiner  
4/25/07